

PCT

RAW SEQUENCE LISTING DATE: 10/12/2004
PATENT APPLICATION: US/10/510,162 TIME: 12:04:13

Input Set : A:\38509-0016US1.txt

Output Set: N:\CRF4\10122004\J510162.raw

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3 <110> APPLICANT: Corena T. McMANUS
              David A. JONES
      6 <120> TITLE OF INVENTION: METHYL-CPG BINDING DOMAIN PROTEIN 2 HOMOLOGS
      8 <130> FILE REFERENCE: 38509-0016US1
C--> 10 <140> CURRENT APPLICATION NUMBER: US/10/510,162
C--> 11 <141> CURRENT FILING DATE: 2004-10-05
     13 <150> PRIOR APPLICATION NUMBER: PCT/US03/10631
                                                       14 <151> PRIOR FILING DATE: 2003-04-07
     16 <150> PRIOR APPLICATION NUMBER: 60/369,851
                                                       T. Hale
     17 <151> PRIOR FILING DATE: 2002-04-05
     19 <160> NUMBER OF SEQ ID NOS: 6
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     26 <213 > ORGANISM: Homo sapiens
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     32 ctgctctccc catgagactc accagctgca tcttccggag gccggtgaca aggatcaggt 240
     33 ctcatectga caaccaggte agaegeagaa aaggggaega geacetggag aageegeage 300
     34 aactetgege etaceggaga etgeaggeee tgeageeetg eageageeaa ggagaaggtt 360
     35 caagtccact gcatttggag agcgtcttaa gtatccttgc accggggacg gccagtgaat 420
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     54 Lys Leu Lys Arg Asn Met Met Pro Trp Ala Leu Gln Lys Lys Arg Glu
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                                         25
     57 Ile His Met Ala Lys Ala His Arg Arg Arg Ala Ala Arg Ser Ala Leu
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60 Pro Met Arg Leu Thr Ser Cys Ile Phe Arg Arg Pro Val Thr Arg Ile

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61
                           55
63 Arg Ser His Pro Asp Asn Gln Val Arg Arg Arg Lys Gly Asp Glu His
                       70
                                           75 '
66 Leu Glu Lys Pro Gln Gln Leu Cys Ala Tyr Arg Arg Leu Gln Ala Leu
                                       90
69 Gln Pro Cys Ser Ser Gln Gly Glu Gly Ser Ser Pro Leu His Leu Glu
70
              100
                                  105
72 Ser Val Leu Ser Ile Leu Ala Pro Gly Thr Ala Ser Glu Ser Leu Asp
                              120
75 Arg Ala Gly Ala Glu Arg Val Arg Ser Pro Leu Glu Pro Thr Pro Gly
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78 Arg Phe Pro Ala Val Ala Gly Gly Pro Thr Pro Gly Met Gly Cys Gln
79 145
81 Leu Pro Pro Pro Leu Ser Gly Gln Leu Val Thr Pro Ala Asp Ile Arg
82
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                                      170
84 Arg Gln Ala Arg Arg Val Lys Lys Ala Arg Glu Arg Leu Ala Lys Ala
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99 agttcacaga ggaagcaacg tgactgtgta aaccaatgca aatcaaagcc tggcttgagc 180
100 acctcaatcc ctttgagaat gtccagttac acattcaaga ggccagtaac gagaattaca 240
101 ccccatcctg gcaatgaggt cagataccat caatgggagg agagcttgga gaagcctcag 300
102 caggtetget ggcagaggag actgcaggga etecaggett acagcagtge aggagaactt 360
103 tcaagcactt tggatcttgc caataccttg caaaaacttg tccctagtta cacaggtgga 420
104 tetetgetgg aggatettge cagtggtetg gageacteet gecceatgee ceaecttgee 480
105 tgctcttcag atgcggtgga gataattcct gcagagggag tgggtatctc gcagctcctc 540
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107 gtcagagaga gactcgcaat agcactgatt gcggatggac tcgctaatga ggcagagaaa 660
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125 Tyr Thr Phe Lys Arg Pro Val Thr Arg Ile Thr Pro His Pro Gly Asn
126
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Output Set: N:\CRF4\10122004\J510162.raw

| 131   Val   Cys   Trp   Gln   Arg   Arg   Leu   Gln   Gly   Leu   Gln   Ala   Tyr   Ser   Ser   Ala   132   65   70   75   75   75   90   95   95   95   95   95   95   9  | 128<br>129 | Glu    | Val<br>50   | Arg        | Tyr   | His  | Gln  | Trp<br>55 | Glu | Glu          | Ser | Leu     | Glu<br>60 | Lys          | Pro | Gln | Gln    |
|--|------------|--------|-------------|------------|-------|------|------|-----------|-----|--------------|-----|---------|-----------|--------------|-----|-----|--------|
| 135  |            |        | Cys         | Trp        | Gln   | Arg  |      | Leu       | Gln | Gly          | Leu |         | Ala       | Tyr          | Ser | Ser |        |
| 138  |            | Gly    | Glu         | Leu        | Ser   |      | Thr  | Leu       | Asp | Leu          |     | Asn     | Thr       | Leu          | Gln | _   | Leu    |
| 141  |            | Val    | Pro         | Ser        | _     | Thr  | Gly  | Gly       | Ser |              | Leu | Glu     | Asp       | Leu          |     | Ser | Gly    |
| 144  |            | Leu    | Glu         |            | Ser   | Cys  | Pro  | Met       |     | His          | Leu | Ala     | Cys       |              | Ser | Asp | Ala    |
| 147 145  | _          | Val    |             | Ile        | Ile   | Pro  | Ala  |           | Gly | Val          | Gly | Ile     |           | Gln          | Leu | Leu | Cys    |
| 150  |            |        | Gln         | Phe        | Leu   | Val  |      | Glu       | Glu | Asp          | Ile |         | Lys       | Gln          | Glu | Gly |        |
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| 159 <211> LENGTH: 262 160 <212> TYPE: PRT 161 <213> ORGANISM: Homo sapiens 163 <400> SEQUENCE: 5 164 Met Asp Cys Pro Ala Leu Pro Pro Gly Trp Lys Lys Glu Glu Val Ile 165 1   |            | •      | _           | EO II      | O NO  | : 5  |      |           |     |              |     |         |           |              |     |     |        |
| 160  |            |        |             |            |       |      |      |           |     |              |     |         |           |              |     |     |        |
| 163  |            |        |             |            |       |      |      |           |     |              |     |         | •         |              |     |     |        |
| 163  |            |        |             |            |       | Homo | sar  | oiens     | 3   |              |     |         |           |              |     |     |        |
| 164 Met Asp Cys Pro Ala Leu Pro Pro Gly Trp Lys Lys Glu Glu Val Ile 165 1  |            |        | <u>-</u>    |            |       |      |      |           |     |              |     |         |           |              |     |     |        |
| 165  |            |        |             |            |       |      | Leu  | Pro       | Pro | Glv          | Trp | Lvs     | Lvs       | Glu          | Glu | Val | Ile    |
| 168       20       25       30         170       Pro Ser Gly Lys Lys Lys Phe Arg Ser Lys Pro Gln Leu Ala Arg Tyr Leu 171       35       40       45         173       Gly Asn Thr Val Asp Leu Ser Ser Phe Asp Phe Arg Thr Gly Lys Met 174       50       55       60         176       Met Pro Ser Lys Leu Gln Lys Asn Lys Gln Arg Leu Arg Asn Asp Pro 177       65       70       75       80         179       Leu Asn Gln Asn Lys Gly Lys Pro Asp Leu Asn Thr Thr Leu Pro Ite 180       85       90       95         182       Arg Gln Thr Ala Ser Ite Phe Lys Gln Pro Val Thr Lys Val Thr Asn 100       105       110         188       100       120       120       125         188       Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser Ala Ser 189       130       125         188       Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser Ala Ser 199       125         189       130       15       120       125         189       130       15       15       120         189       130       15       15       120         189       130       15       15       15         189       130       15       15       16         180       15       15       16 <td>165</td> <td>1</td> <td></td> <td></td> <td></td> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td>10</td> <td></td> <td></td> <td></td> <td></td> <td>15</td> <td></td>   | 165        | 1      |             |            |       | 5    |      |           |     |              | 10  |         |           |              |     | 15  |        |
| 170 Pro Ser Gly Lys Lys Phe Arg Ser Lys Pro Gln Leu Ala Arg Tyr Leu 171 35   |            | Arg    | Lys         | Ser        | _     | Leu  | Ser  | Ala       | Gly |              |     | Asp     | Val       | Tyr          | _   | Phe | Ser    |
| 171  |            | Pro    | Ser         | Glv        |       | T.vc | Phe  | Δra       | Ser | ,            |     | Gln     | I.e.11    | Δla          |     | Tur | T.e.11 |
| 174  |            | 110    | 501         |            | ביים  | 275  | 1110 |           |     | <b>-</b> 175 | 110 | 0111    | Dea       |              | 9   | -7- | 200    |
| 176 Met Pro Ser Lys Leu Gln Lys Asn Lys Gln Arg Leu Arg Asn Asp Pro 177 65   | 173        | Gly    | Asn         | Thr        | Val   | Asp  | Leu  | Ser       | Ser | Phe          | Asp | Phe     | Arg       | Thr          | Gly | Lys | Met    |
| 177 65   |            |        |             |            |       |      |      |           |     |              |     |         |           |              |     |     |        |
| 179 Leu Asn Gln Asn Lys Gly Lys Pro Asp Leu Asn Thr Thr Leu Pro Ile 180  |            |        | Pro         | Ser        | Lys   | Leu  |      | Lys       | Asn | Lys          | Gln |         | Leu       | Arg          | Asn | Asp |        |
| 180       85       90       95         182       Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val Thr Lys Val Thr Asn 103       100       105       105       110       <   |            |        |             | <b>~</b> 1 |       |      |      |           | _   |              | _   | _       | m)        | m)           | -   |     |        |
| 182       Arg Gln Thr       Ala Ser Ile Phe Lys Gln Pro Val Thr Lys Val Thr Asn         183       100       105       105       110       110         185       His Pro Ser Asn Lys Val Lys Val Lys Ser Asp Pro Gln Arg Met Asn Glu Gln       186       125       125         188       Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser Ala Ser       189       130       135       140         191       Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu Leu Pro Lys Gly Leu       192       145       150       150       155       155       160         194       Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val       175       175       175         197       Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser       190       180       185       190  |            | Leu    | Asn         | GIn        | Asn   | _    | GIY  | ьуs       | Pro | Asp          |     | Asn     | Thr       | Tnr          | ьeu |     | 11e    |
| 183       Image: contract of the contr |            | Ara    | Gln         | Thr        | Δla   |      | Tle  | Phe       | Lvs | Gln          |     | Val     | Thr       | Lvs          | Val |     | Asn    |
| 185       His       Pro       Ser       Asn       Lys       Val       Lys       Ser       Asp       Pro       Gln       Arg       Met       Asn       Glu       Gln         186       Indextoring       Indexto  |            | **** 9 | <b>Q111</b> |            |       | 501  |      |           | цуб |              | 110 | • • • • |           | <b>L</b> , 5 |     |     | 11011  |
| 186       115       120       125       125         188       Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser Ala Ser         189       130       135       140         191       Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu Leu Pro Lys Gly Leu         192       145       150       155       160         194       Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val       175         195       165       170       175       175         197       Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser         198       180       185       185       190  |            | His    | Pro         | Ser        |       | Lvs  | Val  | Lvs       | Ser |              | Pro | Gln     | Ara       | Met          |     | Glu | Gln    |
| 188       Pro       Arg       Gln       Leu       Phe       Trp       Glu       Lys       Arg       Leu       Gly       Leu       Ser       Ala       Ser         189       130       130       135       140       140       140       150       140       160       140       1  |            |        |             |            |       |      |      | _         |     | _            |     |         |           |              |     |     | ~      |
| 189       130       135       140         191       Asp       Val       Thr       Glu       Glu       Leu       Pro       Lys       Glu       Leu       Pro       Lys       Glu       Leu       Pro       Lys       Glu       Leu       Pro       Lys       Leu       155       Leu       Leu       Leu       160         194       Glu       Gly       Val       Gly       Pro       Gly       Ser       Asp       Glu       Thr       Leu       Leu       Ser       Ala       Val         195       Lys       Ala       Leu       His       Thr       Ser       Ala       Pro       Ite       Thr       Gly       Gly       Leu       Leu       Leu       Val       Ite       I  |            |        |             |            |       |      |      |           |     |              |     |         |           |              |     | Ala | Ser    |
| 191 Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu Leu Pro Lys Gly Leu 192 145 - 150 - 150 - 155 - 160 194 Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val 195 - 165 - 170 - 175 197 Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser 198 - 180 - 180 - 185 - 185 - 190  |            |        |             |            |       |      | p    |           |     | 5            |     | <b></b> |           |              |     |     |        |
| 192 145 150 155 160  194 Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val  195 165 170 175  197 Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser  198 180 180 185 190  |            |        |             | Thr        | Glu   | Gln  | Ile  |           | Lvs | Thr          | Met | Glu     |           | Pro          | Lvs | Glv | Leu    |
| 194 Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser Ala Val 195 165 170 175 197 Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser 198 180 180 185 196  |            | -      |             | -          |       |      |      |           |     |              |     |         |           |              | 1   | - 4 |        |
| 195 165 170 175<br>197 Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser<br>198 180 185 190  |            |        | Gly         | Val        | Glv   | Pro  |      | Ser       | Asn | asA          | Glu |         | Leu       | Leu          | Ser | Ala |        |
| 197 Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln Val Ser<br>198 180 185 190   |            |        | - 4         |            | - 4   |      | - 4  |           |     | - 12-        |     |         |           |              |     |     | -      |
| 198 · 180 185 190  |            | Ala    | Ser         | Ala        | Leu   |      | Thr  | Ser       | Ser | Ala          |     | Ile     | Thr       | Gly          | Gln |     | Ser    |
|  |            |        |             |            |       |      |      |           |     |              |     |         |           | -            |     |     |        |
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Output Set: N:\CRF4\10122004\J510162.raw

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| 204 |  | 210  | -    |       |              |            | 215        |          | -           |           | -          | 220        | _    | -    |     |           |
| 206 | Glu                                      | Arq  | Val  | Gln   | Gln          | Val        | Ara        | Lvs      | Lys         | Leu       | Ğlu        | Glu        | Ala  | Leu  | Met | Ala       |
|     | 225                                      |      |      |       |              | 230        | 5          | -1-      | -1-         |           | 235        |            |      |      |     | 240       |
|     |  | Tle  | Len  | Ser   | Ara          |            | Δla        | Asn      | Thr         | Glu       |            | Met        | Asn  | Tle  | Glu |           |
| 210 | 1101                                     |      | Lou  | 001   | 245          | 711 U      | 1114       | 1101     | ****        | 250       | Oru        | 1100       | Mop  | 110  | 255 | ricc      |
|     | 7 cn                                     | cor  | Clar | 7 cn  |              | מות        |            |          |             | 250       |            |            |      |      | 233 |           |
| 213 | Азр                                      | DET  | Gry  | 260   | Glu          | AIa        |            |          |             |           |            |            |      |      |     |           |
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|     |  |      |      |       | Homo sapiens |            |            |          |             |           |            |            |      |      |     |           |
|     |  |      |      | NCE:  |              | _          |            | _        | _           |           |            | _          |      |      | _   |           |
|     |  | GIu  | Arg  | Lys   | _            | Trp        | Glu        | Cys      | Pro         |           | Leu        | Pro        | GIn  | Gly  | _   | Glu       |
| 223 | 1  |      |      |       | 5            |            |            |          |             | 10        |            |            |      |      | 15  |           |
| 225 | Arg                                      | Glu  | Glu  | Val   | Pro          | Arg        | Arg        | Ser      | Gly         | Leu       | Ser        | Ala        | Gly  | His  | Arg | Asp       |
| 226 |  |      |      | 20    |              |            |            |          | 25          |           |            |            |      | 30   |     | •         |
| 228 | Val                                      | Phe  | Tyr  | Tyr   | Ser          | Pro        | Ser        | Gly      | Lys         | Lys       | Phe        | Arg        | Ser  | Lys  | Pro | Gln       |
| 229 |  |      | 35   |       |              |            |            | 40       |             |           |            |            | 45   |      |     |           |
| 231 | Leu                                      | Ala  | Arg  | Tyr   | Leu          | Gly        | Gly        | Ser      | Met         | Asp       | Leu        | Ser        | Thr  | Phe  | Asp | Phe ·     |
| 232 |  | 50   |      |       |              |            | 55         |          |             |           |            | 60         |      |      |     |           |
| 234 | Arg                                      | Thr  | Gly  | Lys   | Met          | Leu        | Met        | Ser      | Lys         | Met       | Asn        | Lys        | Ser  | Arg  | Gln | Arg       |
| 235 | 65                                       |      |      |       |              | 70         |            |          |             |           | 75         |            |      |      |     | 80        |
| 237 | Val                                      | Arg  | Tyr  | Asp   | Ser          | Ser        | Asn        | Gln      | Val         | Lys       | Gly        | Lys        | Pro  | Asp  | Leu | Asn       |
| 238 |  |      |      |       | 85           |            |            |          |             | 90        |            |            |      |      | 95  |           |
| 240 | Thr                                      | Ala  | Leu  | Pro   | Val          | Arg        | Gln        | Thr      | Ala         | Ser       | Ile        | Phe        | Lys  | Gln  | Pro | Val       |
| 241 |  |      |      | 100   |              | _          |            |          | 105         |           |            |            | -    | 110  |     |           |
| 243 | Thr                                      | Lys  | Ile  | Thr   | Asn          | His        | Pro        | Ser      | Asn         | Lys       | Val        | Lys        | Ser  | Asp  | Pro | Gln       |
| 244 |  | -    | 115  |       |              |            |            | 120      |             | -         |            | _          | 125  | -    |     |           |
| 246 | Lys                                      | Ala  | Val  | Asp   | Gln          | Pro        | Arq        | Gln      | Leu         | Phe       | Trp        | Glu        | Lys  | Lys  | Leu | Ser       |
| 247 | •  | 130  |      | -     |              |            | 135        |          |             |           | -          | 140        | •    | -    |     |           |
| 249 | Glv                                      | Leu  | Asn  | Ala   | Phe          | asA        | Ile        | Ala      | Glu         | Glu       | Leu        | Val        | Lvs  | Thr  | Met | Asp       |
|     | 145                                      |      |      |       |              | 150        |            |          |             |           | 155        |            | -1-  |      |     | 160       |
|     |  | Pro  | Lvs  | Glv   | Len          |            | Glv        | Val      | Gly         | Pro       |            | Cvs        | Thr  | Asp  | Glu |           |
| 253 |  |      | -1-  | 1     | 165          |            | <b>-</b> 1 |          | 0-7         | 170       | <b>-</b> 1 | 07.5       |      | 1p   | 175 |           |
|     | T.eu                                     | ī.eu | Ser  | Δla   |              | Δla        | Ser        | Δla      | Leu         |           | Thr        | Ser        | Thr  | Met  |     | Tle       |
| 256 | шец                                      | Lea  | JCI  | 180   |              | 1114       |            | 1114     | 185         | 1115      | 1111       | DCI        | 1111 | 190  | 110 | 110       |
|     | Thr                                      | Glv  | Gln. |       | Car          | λ] =       | 715        | Wa l     | Glu         | Larg      | λan        | Dro        | Clv  |      | Trn | Lou       |
| 259 | 1111                                     | Ory  | 195  | пси   | DCI          | nia        | ALG        | 200      | Giu         | цуз       | ASII       | 110        | 205  | vai  | тър | шеи       |
|     | 7 an                                     | Thr  |      | C1 ~  | Dro          | T 011      | Crra       |          | 77.         | Dho       | Mot        | 170 T      |      | 7 00 | ~1  | 7 ~~      |
|     | ASII                                     |      | 1111 | GIII  | PIO          | цец        | _          | цур      | Ala         | PHE       | Met        |            | 1111 | Asp  | GIU | Asp       |
| 262 | T1.                                      | 210  | T    | 01×   | <b>a</b> 1   | <b>~</b> 1 | 215        | 37-7     | <b>~1</b> ~ | <b>01</b> | 77-7       | 220        | T    | 7)   | T   | <b>01</b> |
|     |  | arg  | гаг  | GIN   | GIU          |            | ьeu        | val      | Gln         | GIN       |            | arg        | ьуѕ  | arg  | ьeu |           |
| 265 |  | 77.  | • .  | 34. 1 | <b>7</b> . 7 | 230        |            | <b>.</b> | 2.7         |           | 235        | <b>~</b> 1 | ~1   | -    | - 7 | 240       |
|     | GIU                                      | Ата  | ьeu  | мет   |              | Asp        | Met        | ьeu      | Ala         |           | vaı        | GIu        | GIU  | ьeu  |     | arg       |
| 268 | _  | ~-7  |      |       | 245          | _          | _          | _        |             | 250       |            |            |      | _    | 255 |           |
|     | Asp                                      | GLY  | Glu  |       | Pro          | Leu        | Asp        | Lys      | Ala         | Cys       | Ala        | GLu        | Asp  |      | Asp | GIu       |
| 271 |  | _    |      | 260   |              |            |            |          | 265         |           |            |            |      | 270  | _   |           |
| 273 | Glu                                      | Asp  | Glu  | Glu   | Gļu          | Glu        | Glu        | Glu      | Glu         | Pro       | Asp        | Pro        | Asp  | Pro  | Glu | Met       |

RAW SEQUENCE LISTING

DATE: 10/12/2004

PATENT APPLICATION: US/10/510,162

TIME: 12:04:13

Input Set :  $A:\38509-0016US1.txt$ 

Output Set: N:\CRF4\10122004\J510162.raw

274 275 276 Glu His Val

277 290 VERIFICATION SUMMARY

DATE: 10/12/2004

PATENT APPLICATION: US/10/510,162

TIME: 12:04:14

Input Set : A:\38509-0016US1.txt

Output Set: N:\CRF4\10122004\J510162.raw

L:10 M:270 C: Current Application Number differs, Replaced Application Number

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date